

SOUTHWEST FISHERIES SCIENCE CENTER
FOURTH QUARTER REPORT-FY 2002
For the Period July 1 - September 30, 2002

Submitted by: John Hunter, Division Director, Fisheries Resources Division

Title of Accomplishment or Milestone: Study of the nature of the transition from winter to spring biophysical conditions and its effect upon the monitoring of small pelagic fish spawning.

Current Status: Study completed; Presentation of results given at Ocean Sciences Meeting; Manuscript targeted for completion in October.

Background Information: For small pelagic fishes of the California Current winter and spring are the seasons that are strategically the most important for spawning. The dramatic shift of the physical conditions of winter to the energetic coastal upwelling of nutrient-rich waters in spring and the resulting biological enhancement of plankton provide the basis for subsequent reproductive success and recruitment. The geographic scope and quick development of events have long challenged the capabilities of observation programs. A broad and spatially intensive grid of CTD stations occupied in late winter and repeated 40 days later in 1995 captured the spring transition event off central California in a clarity not seen before.

Purpose of Activity: To investigate the nature of the Spring Transition of the California Current and its impact upon the interpretation of field studies of winter and spring spawning of small pelagic fishes.

Description of Accomplishment and Significant Results: Analysis of the 1995 survey data along with results of other observational programs reveals the rapidity and scale of the biophysical changes of the spring transition. The winter position of the CC jet is 300+ km offshore. Spring upwelling produces a second and narrow coastal current within 100 km of the coast that can range from Oregon to Point Conception. In short order the coastal jet develops instabilities that produce large scale meanders, offshore jets, and eddies that spread the spring planktonic bloom into a broad coastal band. There are large interannual differences in timing and development of the spring transition event.

Significance of Accomplishment: Understanding the nature of the spring transition, its interannual variation and timing, will aid researchers in designing monitoring programs to provide the best interpretation of the results of spawning survey programs.

Problems: None

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